Door Knocker Bell

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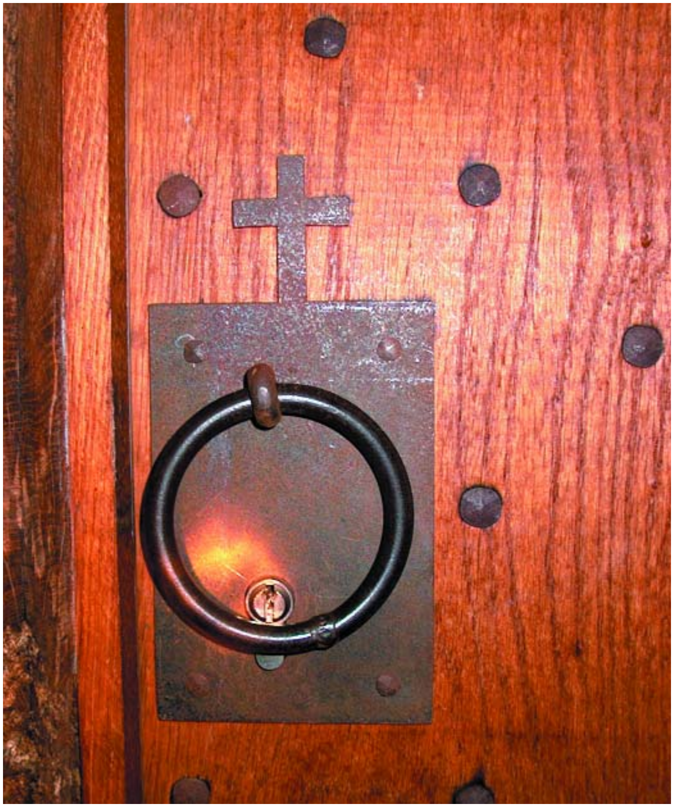

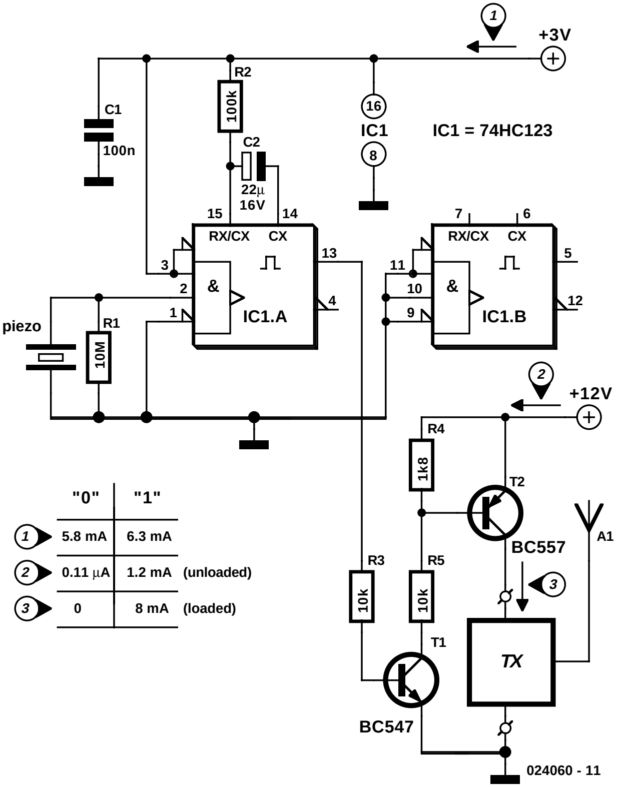

	"0"	"1"	
①	5.8 mA	6.3 mA	
②	0.11 µA	1.2 mA	(unloaded)
③	0	8 mA	(loaded)

If you have an old house, it's nice to have only a door knocker and no doorbell, since 'back then' no-one had a doorbell and it destroys the illusion of authenticity. Although a door knocker makes quite a racket, if you happen to be in the garden, the attic or the cellar it might not be enough. The circuit shown here solves this problem by acting as a sort of 'electronic extension' for the door knocker.

A standard piezoelectric buzzer (not an active type) is used here as a vibration pickup (or 'knocking pickup', if you will). If you tap on such a buzzer it can easily produce a voltage of around 1 V, which is more than enough to trigger monostable IC1a. This in turn produces a pulse with a duration of approximately one second to drive transistors T1 and T2. into conduction. The second of these transistors can be used to energise a relay (to switch on a suitable bell or beeper) or drive a 443-MHz licence-exempt transmitter (as shown here). If you use a transmitter, simply connect T2 in place of the pushbutton. The associated receiver can be carried around everywhere within and around the house, so you can always hear knocking signals from visitors no matter where you are.

With a transmitter, a monostable time of one second is adequate, but with a relay it is better to increase this time somewhat by proportionally increasing the value of C2. By the way, the relay should not draw more than 100 mA, and don't forget the usual flyback diode.

The nice thing about this circuit is that in the rest state it draws almost no current (only a few microampères), so two penlight cells can serve as a power source for quite a long time. Only while someone is knocking does the current consumption rise to several milliampères.

Naturally, the pickup (the piezoelectric buzzer) must be fitted flat in the vicinity of the knocker. Excellent results can be obtained if it is mounted on the inside of the door. If you're handy with tools and want to have everything finished off as neatly as possible, you can also drill a hole in the door and recess the pickup into it.

One final remark: depending on the type of buzzer used, the sensitivity may be too great, with the result that the bell rings at the slightest provocation. In this case, the value of the parallel resistor (R1) can be reduced until the desired sensitivity is obtained.

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